

REMARKS

Entry of the foregoing and reconsideration of the application identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.111 and in light of the remarks which follow, are respectfully requested.

By the above amendments, the specification has been amended to capitalize trademarks recited therein. Claims 16-19 have been canceled without prejudice or disclaimer, and the subject matter of such claims has been incorporated into claim 15. Claim 15 has also been amended for readability purposes by replacing "having" with "comprising". Claim 15 has been further amended to delete the phrase "preferably at least 15%", and new dependent claim 32 has been added which recites the deleted subject matter. Claim 21 has been amended to recite "polyphosphate" after "melem". Support for this amendment can be found in the instant specification at least at page 5, lines 3-7. Claim 24 has been amended to delete the second occurrence of "poly(vinyl alcohol)".

In the Official Action, the oath or declaration has been indicated as being defective. Without addressing the propriety of this objection, it is noted that an executed substitute declaration is in the process of being obtained, and such document will be forwarded to the Patent Office in due course.

The specification stands objected to for containing trademarks without capitalization. By the above amendments, such trademarks have been capitalized. It is noted that the term "CS99B" is already capitalized and accompanied by the generic terminology. Accordingly, withdrawal of this objection is respectfully requested.

Claims 21 and 24 stand objected to for the reasons set forth at pages 2-3 of the Official Action. Without addressing the propriety of this objection, it is noted that such

objection is moot in view of the above amendments, in which claim 21 has been amended to recite "polyphosphate" after "melem", and claim 24 has been amended to delete the second occurrence of the term "poly(vinyl alcohol)". Accordingly, withdrawal of the objection is respectfully requested.

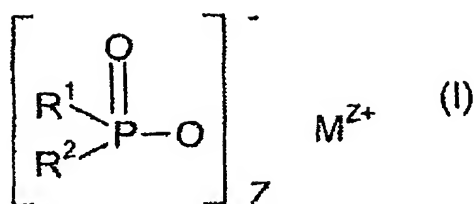
Claims 15-31 stand rejected under 35 U.S.C. §112, second paragraph, for the reasons set forth at pages 3-4 of the Official Action. This rejection is moot in view of the above amendments, in which claim 15 has been amended by deleting the objected-to phrase "preferably at least 15%". Accordingly, withdrawal of the §112, second paragraph, rejection is respectfully requested.

Claims 15, 17, 18, 20-26, 30 and 31 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,255,371 (*Schlosser et al*). Without addressing the propriety of the Examiner's comments in connection with this rejection, it is noted that such rejection is moot in view of the above amendments, in which the subject matter of claims 16 and 19 has been incorporated into independent claim 15. In this regard, claims 16 and 19 have not been listed in the above rejection. Accordingly, for at least this reason, withdrawal of the rejection is respectfully requested.

Claims 16, 19 and 30 stand rejected under 35 U.S.C. §103(a) as being obvious over *Schlosser et al*, and further in view of U.S. Patent No. 6,225,383 (*Hirono et al*). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Independent claim 15, as amended, recites a composition based on a thermoplastic matrix comprising a flame-retardant system, comprising at least:

one compound (F1) of formula (I):



in which:

R¹ and R² are identical or different and represent a linear or branched alkyl chain comprising from 1 to 6 carbon atoms and/or an aryl radical; M represents a calcium, magnesium, aluminum or zinc ion; Z represents 2 or 3;

one compound (F2) which is a reaction product between phosphoric acid and melamine and/or a reaction product between phosphoric acid and a melamine condensation derivative; and

one compound (F3) which is a melamine condensation derivative;

said composition comprising at least 13% by weight of compounds F1 and F2, with respect to the total weight of the composition,

wherein the composition comprises from 1 to 50% by weight of the flame-retardant system comprising at least the compounds F1, F2 and F3; from 1 to 30% by weight of compound F1; from 1 to 20% by weight of compound F2; from 0.1 to 20% by weight of compound F3, with respect to the total weight of the composition.

Schlosser et al discloses a flame retardant combination including, as component A, a phosphinate of the formula (I) and/or a diphosphate of the formula (II) and/or polymers of these, and comprising, as component B, condensation products of melamine and/or reaction products of melamine with phosphoric acid and/or reaction products of condensation products of melamine with phosphoric acid and/or comprising a mixture of these. See col. 1, line 46 to col. 2, line 12.

Schlosser et al does not disclose or suggest each feature recited in independent claim 15. For example, as discussed above, claim 15 has been amended to incorporate the subject matter of now canceled claims 16 and 19 therein. Thus, claim 15 now recites a composition which comprises from 1 to 50% by weight of the flame-retardant system comprising at least the compounds F1, F2 and F3; and from 0.1 to 20% by weight of compound F3. *Schlosser et al* has no disclosure or suggestion of the above claimed range in connection with the compounds F1, F2 and F3, nor the above claimed range in connection with the compound F3. The Patent Office has acknowledged these deficiencies of *Schlosser et al* at page 10-12 of the Official Action.

Hirono et al fails to cure the above-described deficiencies of *Schlosser et al*. In this regard, it appears that the Examiner has relied on *Hirono et al* for disclosing a range which corresponds to the claimed range of compound F3. See Official Action at pages 10-11.

Respectfully, it is well established that "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. [Emphasis in original.]" M.P.E.P. §2141.02(VI). In the present case, it is important to note that *Hirono et al* teaches that the use of reaction products of melem with phosphoric acid in a flame retardant composition, does not result in sufficient flame retardancy, and that when the flame retardant composition absorbs water, reaction product of melem-phosphate is easily transferred to the surface of a molding product thereof, thereby deteriorating the surface appearance. See col. 1, line 42 to col. 2, line 3. *Schlosser et al*, however, teaches the use of reaction products of condensation products of melamine (such as melem, melam or melon) with phosphoric acid in its flame retardant composition. See col. 2, lines 8-12 and 50-52. Quite clearly, *Hirono et*

al teaches away from employing the reaction products which are the subject of the *Schlosser et al* disclosure. The combination of *Schlosser et al* and *Hirono et al* is improper in view of such teaching away, and as such the present rejection should be withdrawn.

Furthermore, while *Hirono et al* has been relied on for disclosing the use of a salt of polyphosphoric acid and melam or a melam derivative, or a salt of polyphosphoric acid and melem or a melem derivative, it is noted that the other primary constituent of the *Hirono et al* composition is a resin component comprising a polyamide resin or a polyamide resin and a thermoplastic resin other than the polyamide resin. See col. 2, lines 26-28. Such resin component is completely different from the component A of the *Schlosser et al* composition, which is a phosphinate, diphosphinate or a polymer thereof. See col. 1, line 46 to col. 2, line 7. Thus, one of ordinary skill in the art would have recognized that the range disclosed by *Hirono et al* is not significant or meaningful to the *Schlosser et al* composition in view of the differing primary constituents of such compositions.

Even if *Schlosser et al* would have been combined with *Hirono et al* in the manner suggested by the Patent Office, Applicants submit that it would not have been obvious to modify the alleged combination to arrive at the claimed ranges in connection with the compounds F1, F2 and F3. As discussed in Applicants' disclosure, according to exemplary aspects of the claimed invention, a composition is provided which provides good characteristics in accordance with various testing procedures, for example, the UL 94 test; the GWFT test according to standard IEC 60695-2-12, which can measure, for example, the capability to extinguish a flame caused by the application of a glow wire; and the GWIT test according to standard IEC 60695-2-13,

which can measure, for example, the capability to not form a flame following the application of a glow wire. Aspects of such testing procedures are discussed in greater detail at pages 12-14 of the instant specification.

Applicants submit that the different characteristics of, for example, flame retardance/resistance measured by the above three tests are not necessarily dependent on each other; that is, a comparative composition can exhibit good characteristics according to one test while at the same time exhibiting poor characteristics according to another test. This is apparent, for example, upon review of the test results for Comparative Example A set forth in Table 1 at page 15 of the specification, in which such Comparative Example was designated as V-0 under the UL 94 test and passed GWFT, but failed GWIT. Each of the inventive Examples 1 to 4, on the other hand, was designated as V-0 under the UL 94 test, and passed both GWFT and GWIT.

Thus, Applicants have surprisingly and unexpectedly discovered that by employing the claimed ranges in connection with the compounds F1, F2 and F3, for example, good characteristics can be obtained under each of the UL 94 test, GWFT and GWIT. By comparison, *Schlosser et al* and *Hirono et al* are merely concerned with the UL 94 test, and have no recognition or suggestion of obtaining a composition which exhibits good characteristics under GWFT and GWIT. The applied art simply has no recognition of the result-effective nature, for example, of the amounts of each of the compounds F1, F2 and F3 on obtaining good characteristics under GWFT and GWIT. Quite clearly, it would not have been obvious to optimize the amounts of the constituents disclosed by *Schlosser et al* and *Hirono et al* to arrive at the claimed ranges of the amounts of the compounds F1, F2 and F3. Moreover, in view of the

surprising and unexpected nature of aspects of the claimed invention as seen, for example, from the experimental data set forth in Applicants' disclosure, it is apparent that independent claim 15 is not obvious over the applied art.

Accordingly, for at least the above reasons, withdrawal of the §103(a) rejection is respectfully requested.

Claim 27 stands rejected under 35 U.S.C. §103(a) as being obvious over *Schlosser et al* in view of U.S. Patent No. 6,433,045 (*Hanabusa et al*). Without addressing the propriety of the Examiner's comments in connection with this rejection, it is noted that such rejection is moot in view of the above amendments, in which the subject matter of claims 16-19 has been incorporated into independent claim 15. In this regard, claims 16-19 have not been listed in the above rejection. Accordingly, for at least this reason, withdrawal of the rejection is respectfully requested.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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